Downtown Transportation Plan Update

TRANSPORTATION COMMISSION
FEBRUARY 14, 2013

TRANSIT SERVING DOWNTOWN
RESIDENTS, WORKERS, VISITORS

Downtown Transportation Plan Update

Presentation and Discussion, February 14, 2013

TRANSIT SERVING DOWNTOWN RESIDENTS, WORKERS, VISITORS

- Downtown Transit Coverage Review
- Downtown Transit Service Capacity
- Next Steps

Downtown Transit Mobility – Scope of Work

Coverage

Speed and Reliability

Capacity

Comfort/Access/Information

Transit Coverage Review

Walkshed Metrics

- 600-foot “crow-flies” radius from a frequent transit network stop
- Crow-flies radius is without regard to the actual walk distance or the quality of the walk
    - Factors not considered include intersection delay, through-block connections, mid-block crossings, pedestrian bridges
- Frequent Transit Network operates at 15 minute or better frequency all day on weekdays for at least 14 hours and the total span of service is 20 hours minimum

Residents with Transit Coverage

- Residents in TAZs touched by the 600’ radius

Employees with Transit Coverage

- Employees in TAZs touched by the 600’ radius

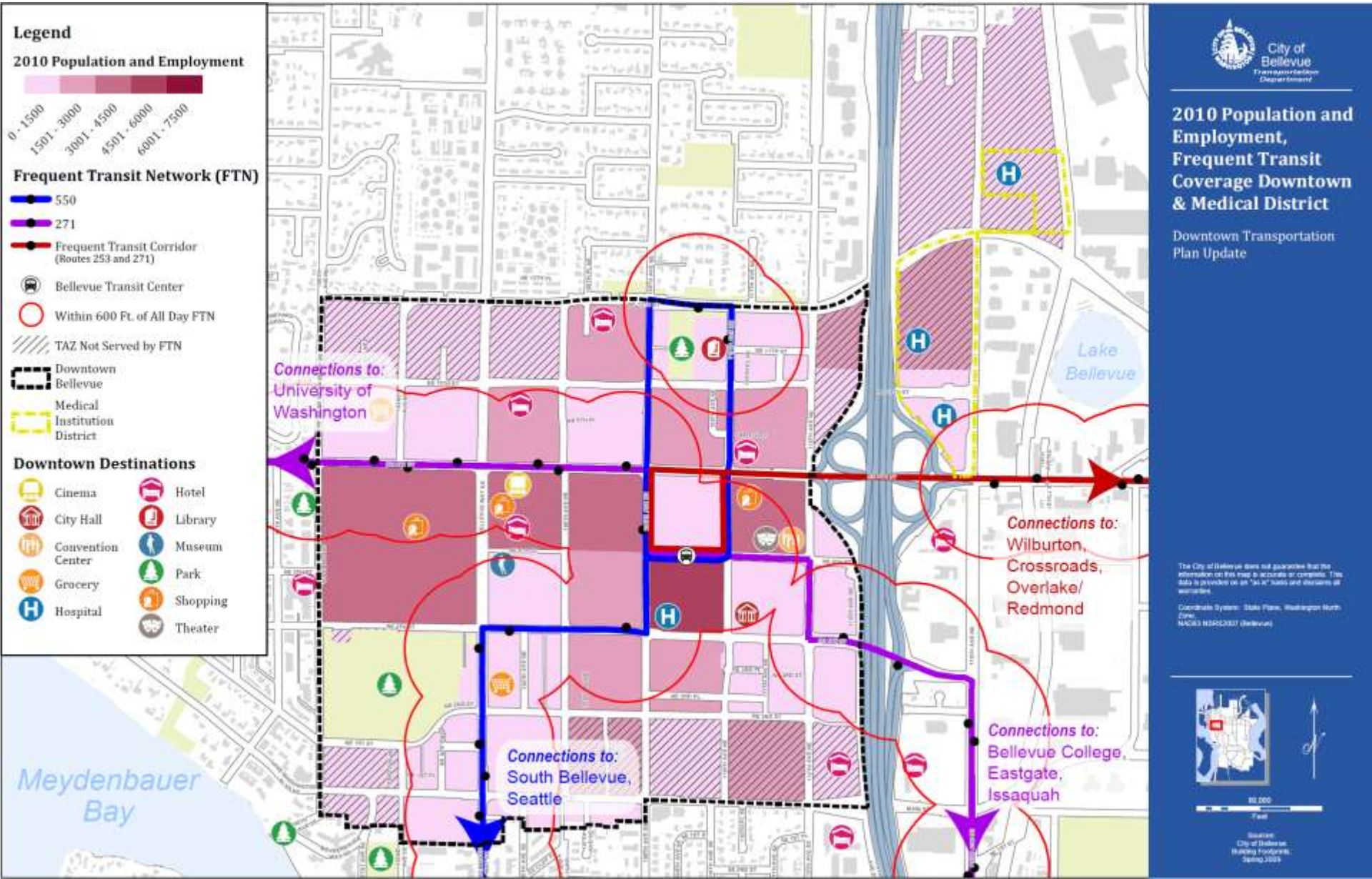
Civic/Cultural/Services Attractions Served

- Community interest

Downtown 2010

Transit + Land Use + 600’ Radius + Coverage

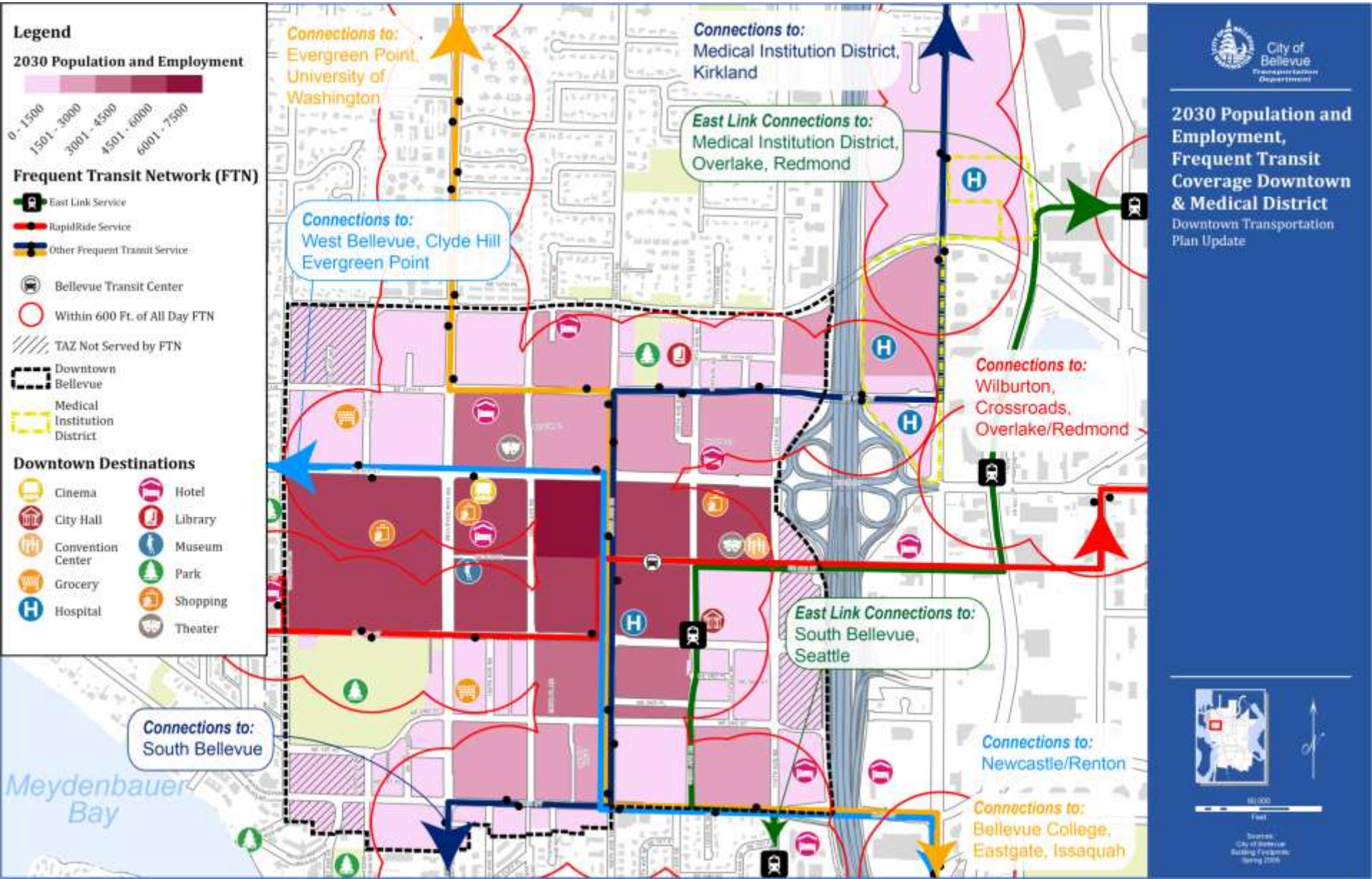
Residents and Employees: 86.4%



Downtown 2030

Transit + Land Use + 600’ Radius + Coverage

Residents and Employees: 97%



DOWNTOWN BELLEVUE TRANSIT
TRANSIT SERVICE CAPACITY

Community Comments

- **Transit Center Capacity**
  - Passenger waiting space, boarding and alighting
  - Passenger circulation - transferring
  - Transit vehicle circulation capacity
  - Bus layover space
- **Arterial Transit Volume**
  - Transit Vehicles Per Hour – PM Peak
- **Pedestrian Crossing Volume**

Transportation Commission Comments 12/14/12

- Transit Center capacity – passengers and vehicles
- Better transit distribution would reduce stress on Transit Center
- Streets – lots of bus traffic on congested streets

Transit Service Capacity

Transit Capacity

Transit Demand for 2030

- BKR Model results for PM peak and daily ridership

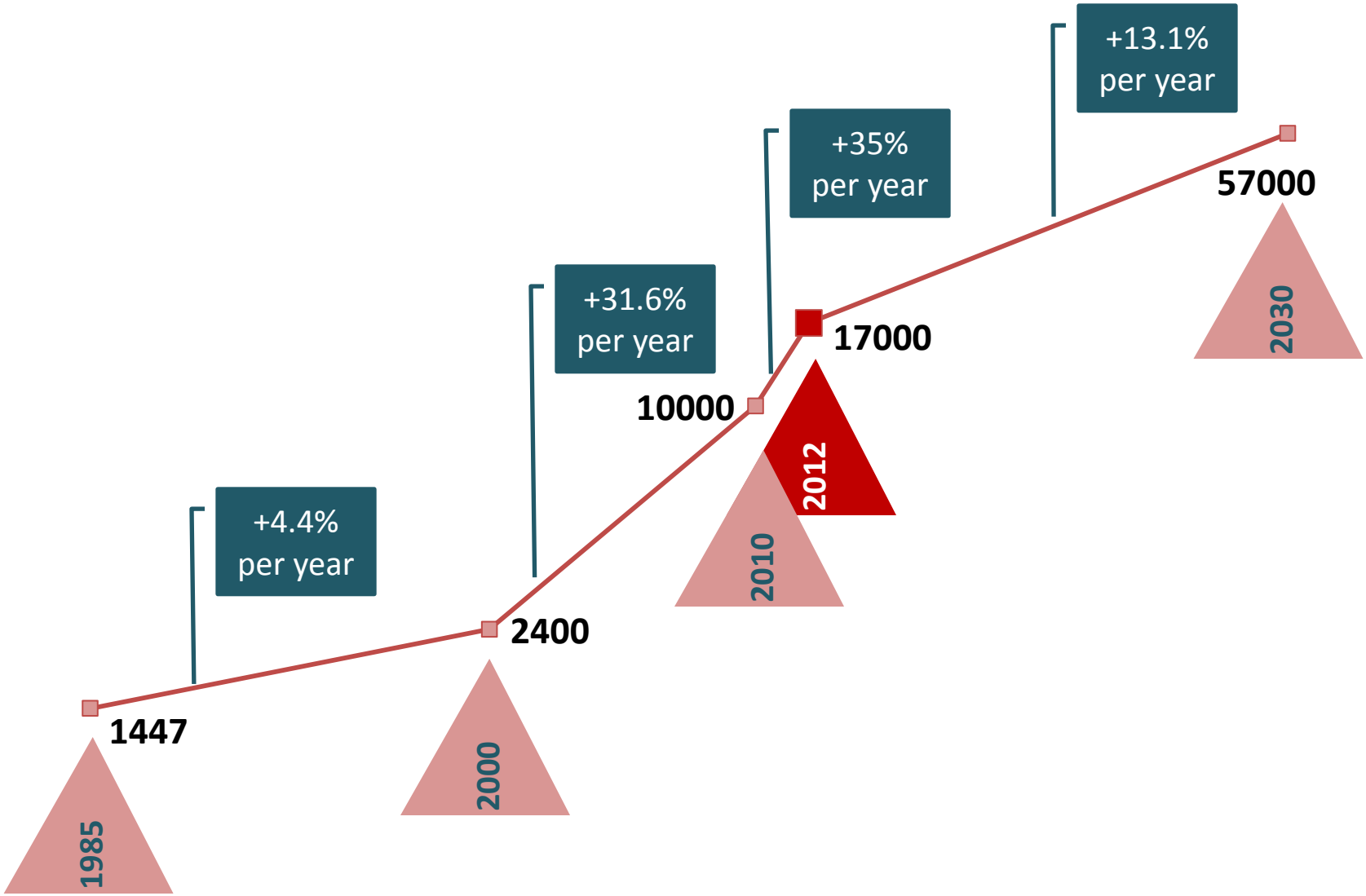
Transit Supply Changes assumed from 2010 Base Year

- East Link
- RapidRide
- Bus service enhancements

Transit Infrastructure Capacity

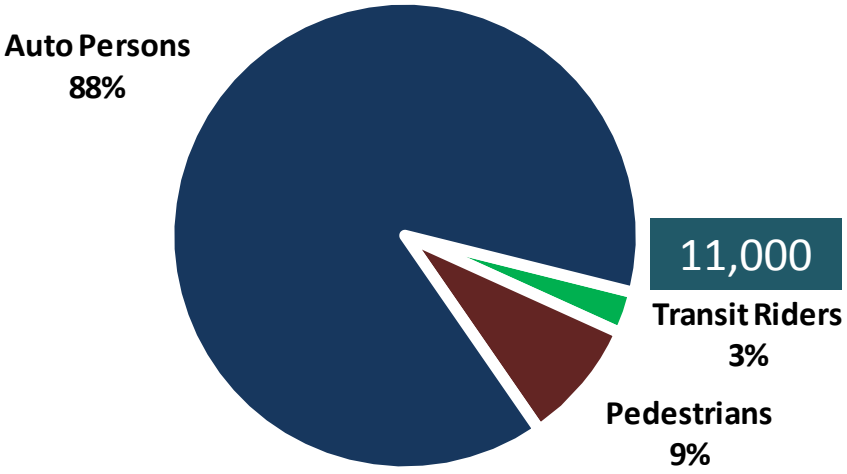
- Constraints and Opportunities
  - Transit Center
  - Arterials
  - Layover space

Downtown Transit Ridership

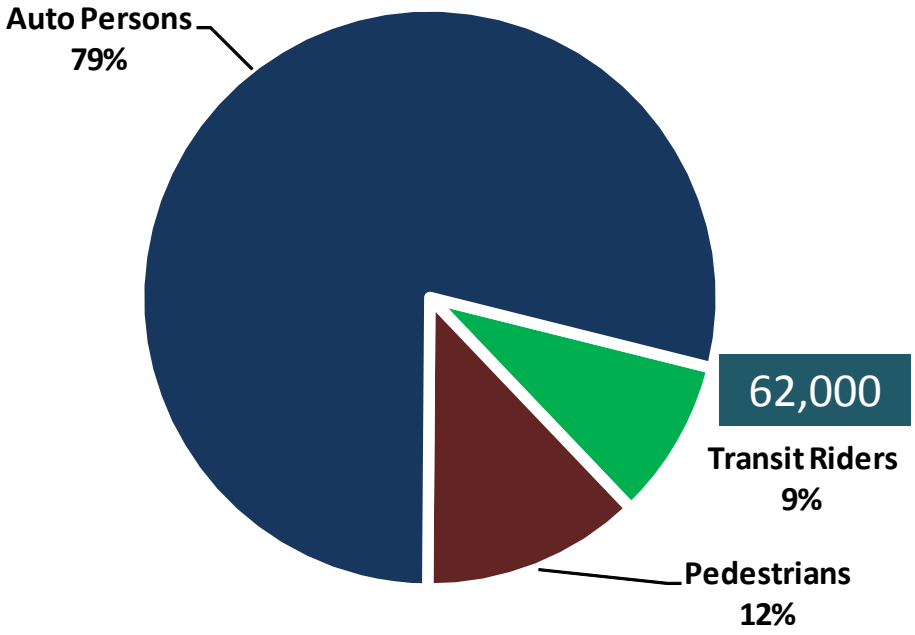


BKR Model – Downtown Person Trips

Downtown Daily Person Trips: 2010



Downtown Daily Person Trips: 2030



Downtown Transit Walk Trip Adjustment

Issue: BKR Model allocates short trips to transit that are likely to be walk trips

Solution: Apply same methodology used to adjust short auto trips

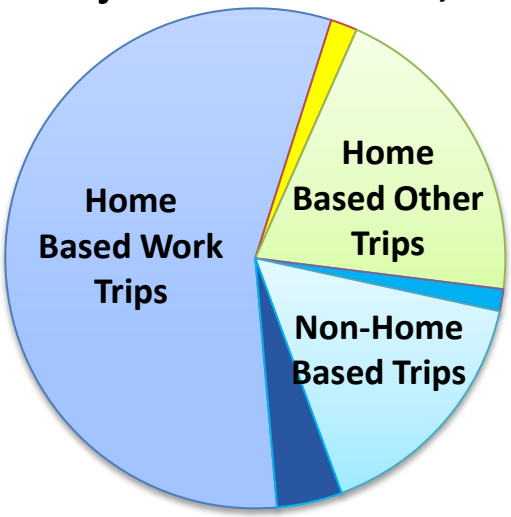
Result: Adjusted numbers for transit trips

Distance (mi)	Walk Likelihood
0.0 – 0.25	70%
0.25-0.5	50%
0.5-0.75	30%
0.75-1.0	10%
> 1.0	5%

2010 Daily Transit Trips

Modeled Total -- 11,000

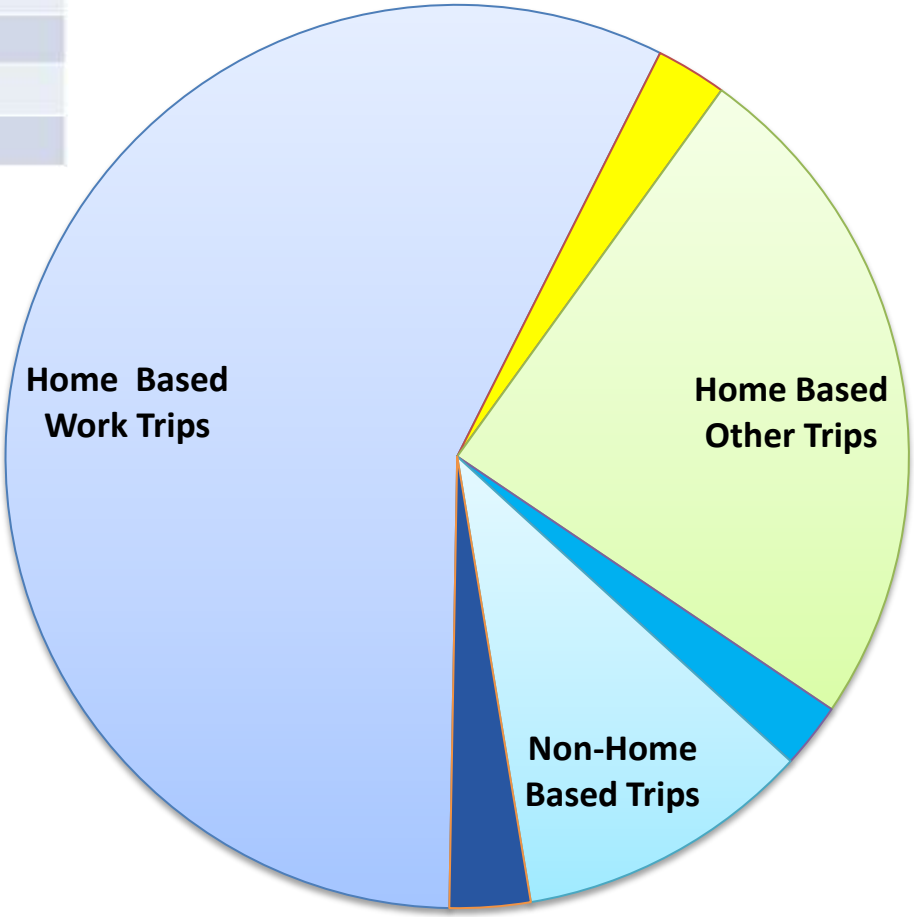
Adjusted Total -- 10,000



2030 Daily Transit Trips

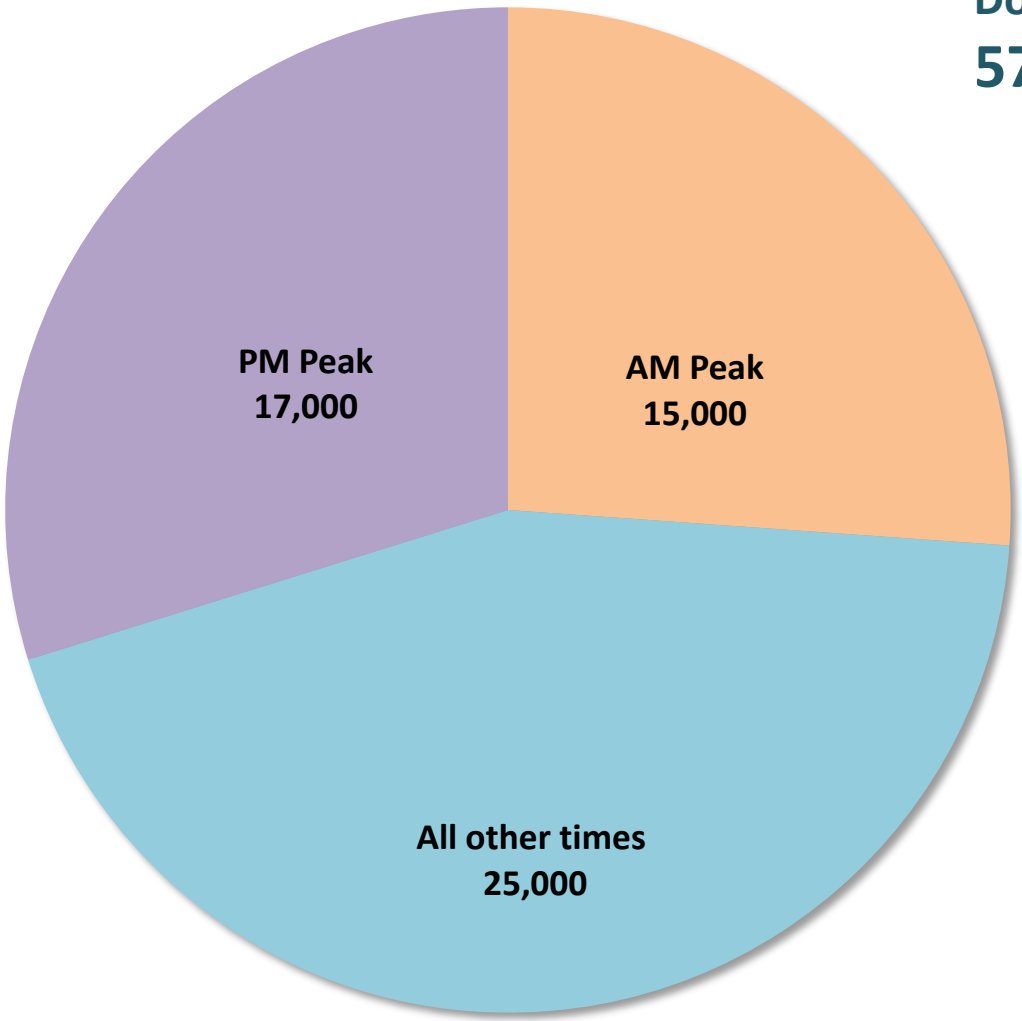
Modeled Total -- 62,000

Adjusted Total -- 57,000

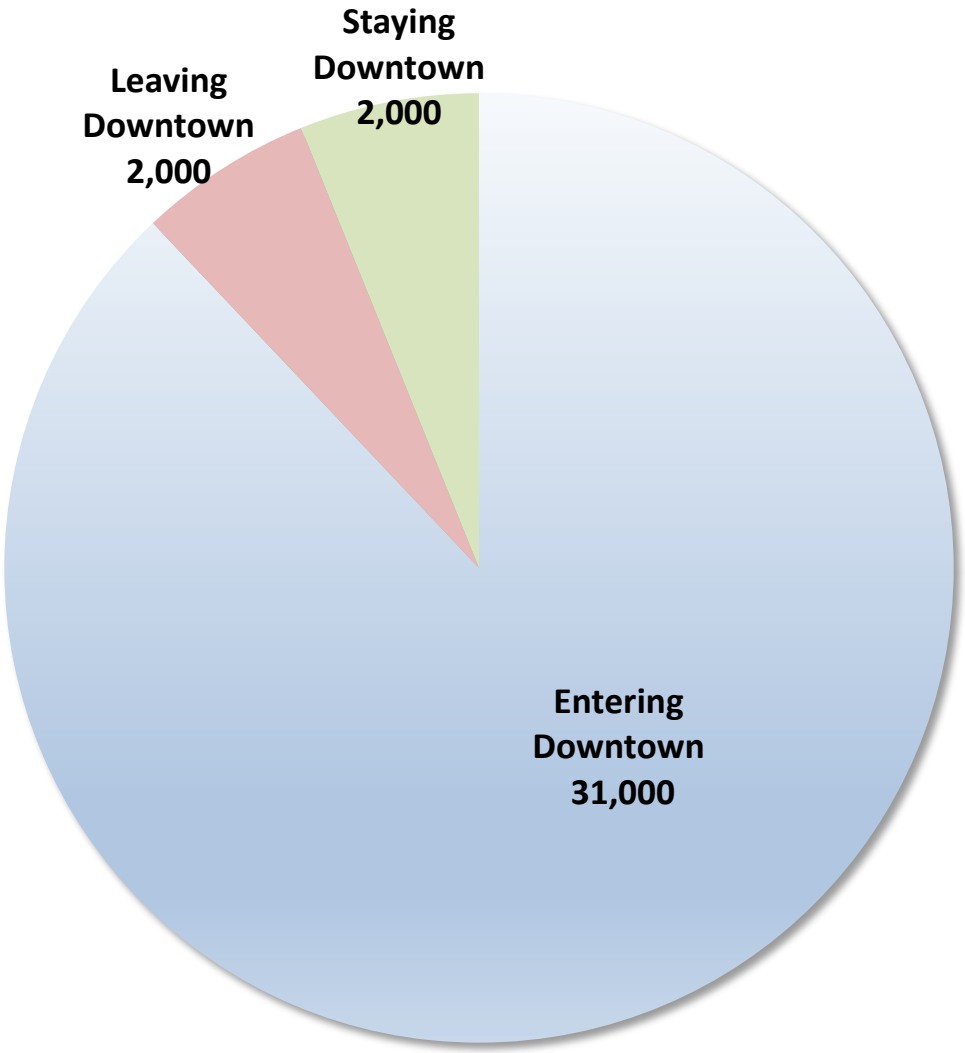


Transit Trips Downtown By Time of Day

2030 Total Transit Trips Downtown:
57,000



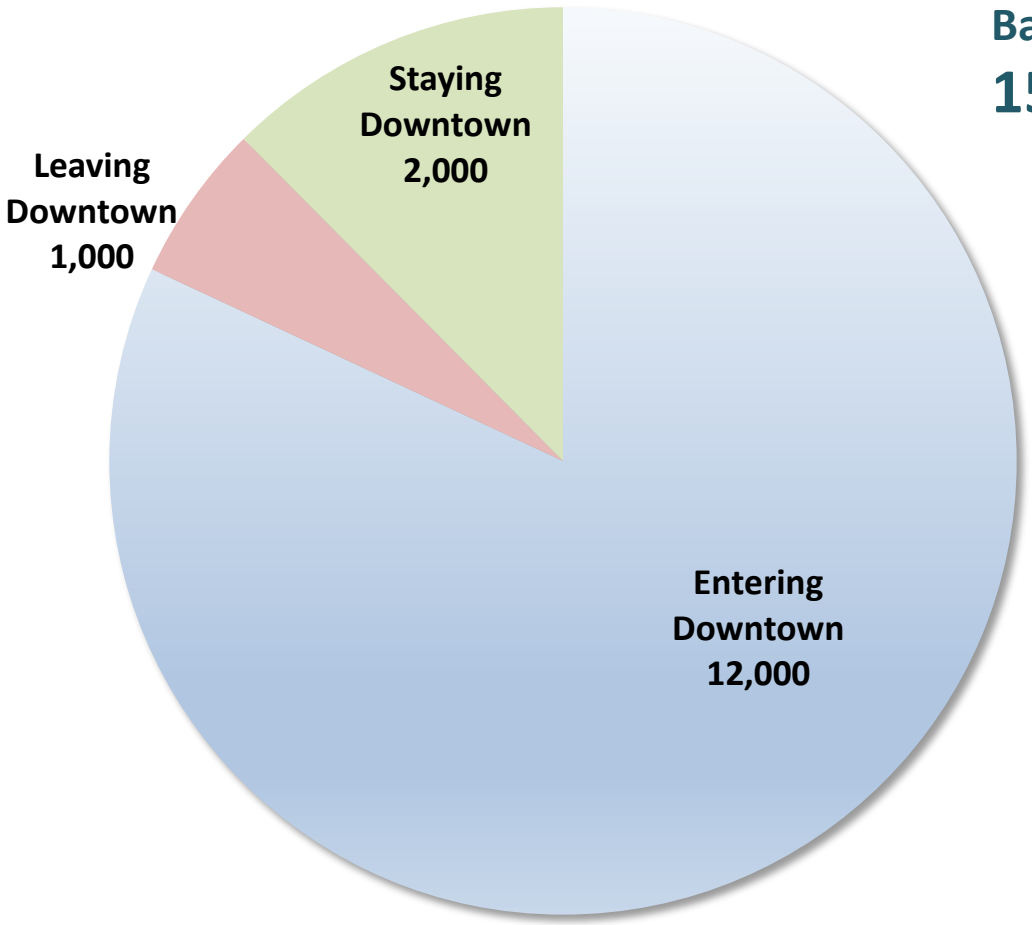
Home Based Work Transit Trips



2030 Total Home Based Work Trips:

36,000

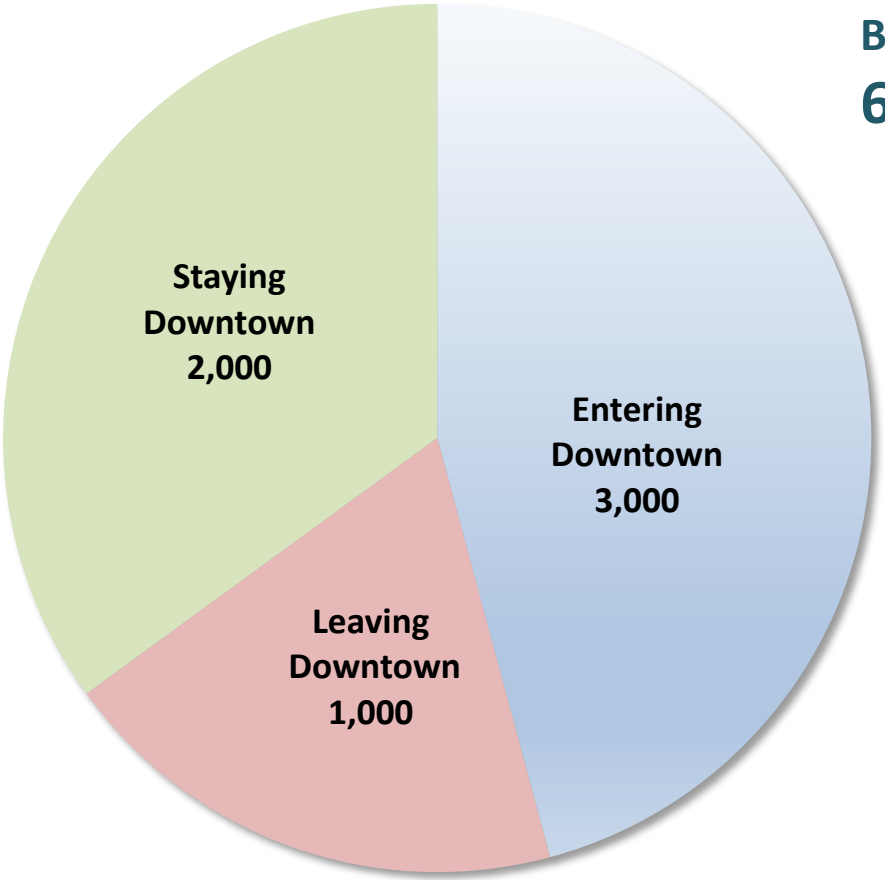
Home Based Other Transit Trips



2030 Total Home Based Other Trips:

15,000

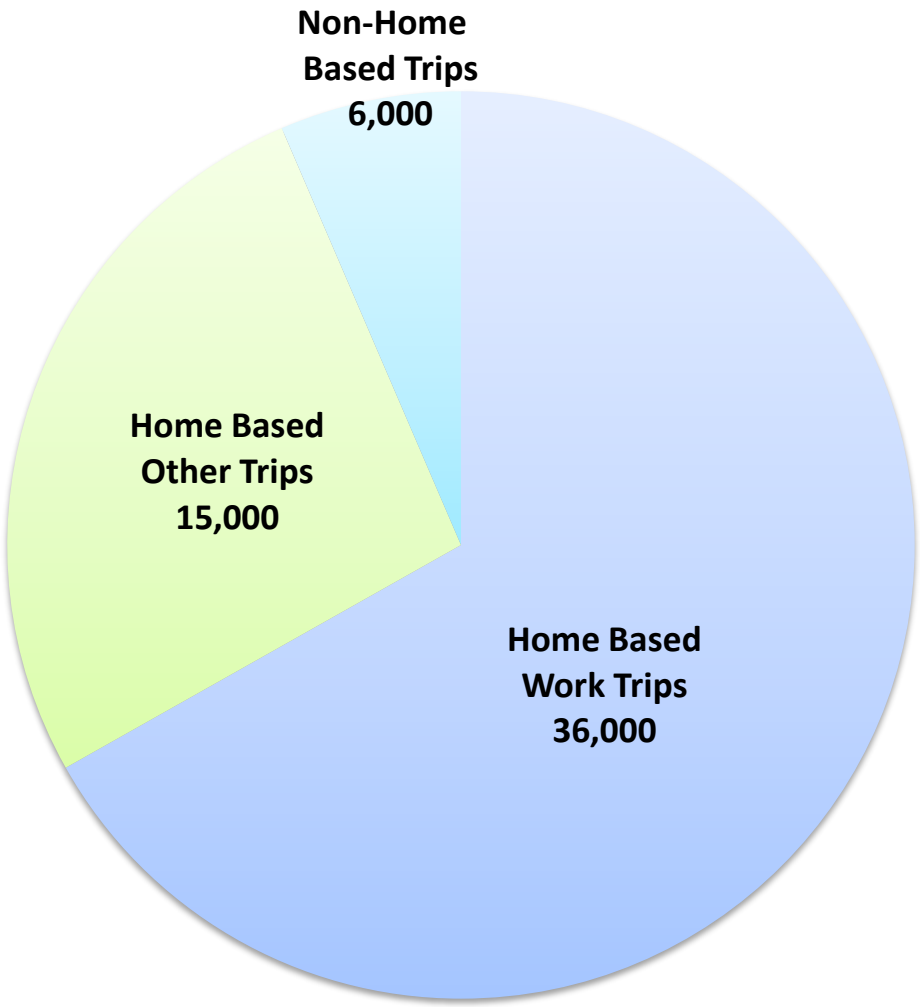
Non-Home Based Transit Trips



2030 Total Non-Home Based Trips:

6,000

Total Transit Trips Entering Downtown

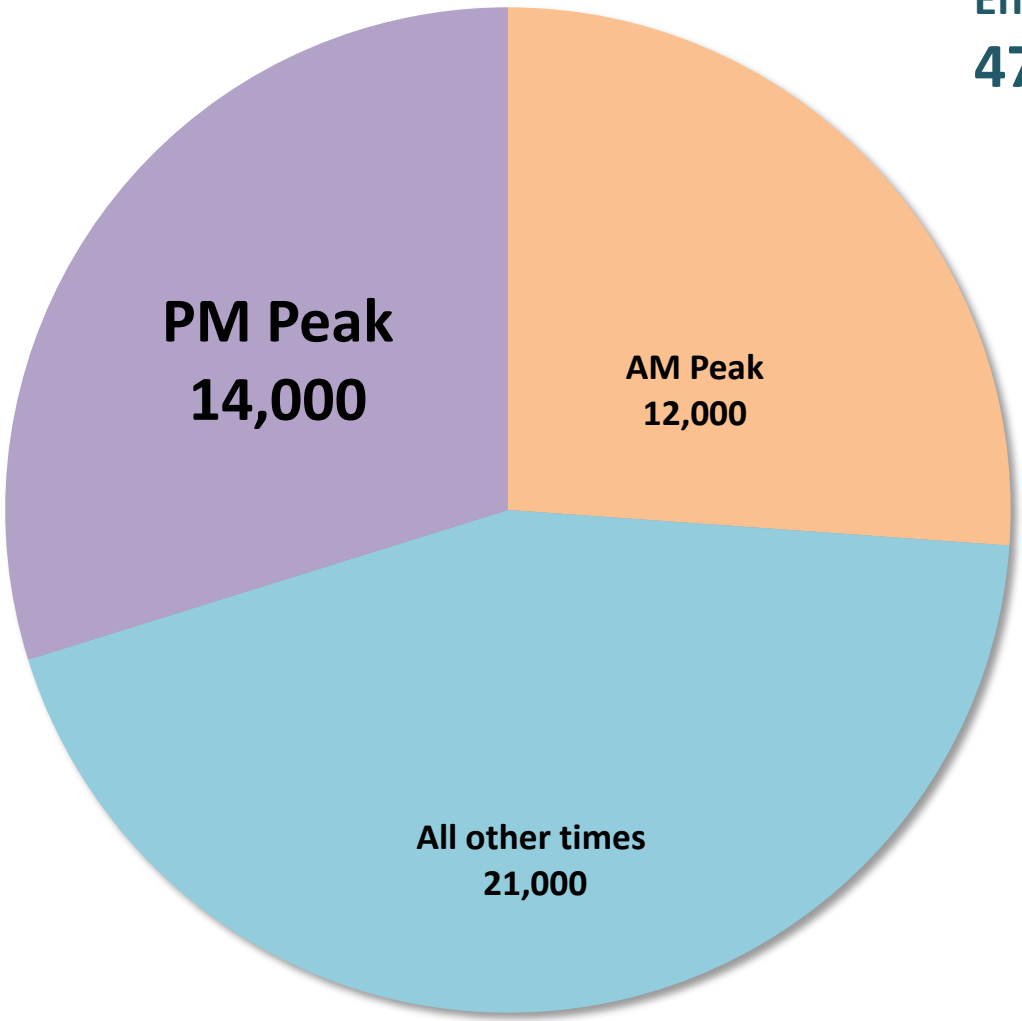


2030 Total Transit Trips Entering Downtown:

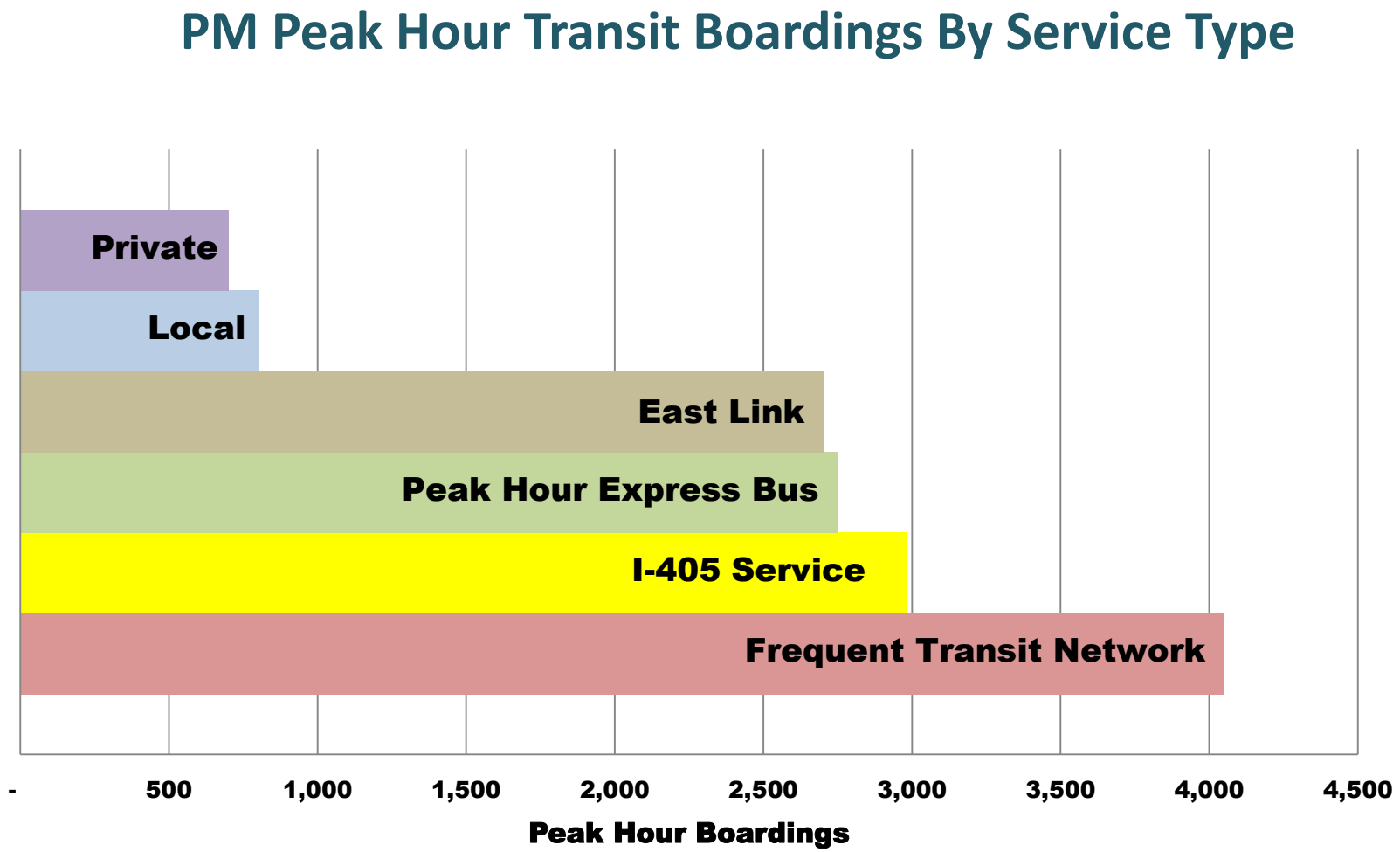
47,000

Transit Trips Entering Downtown By Time of Day

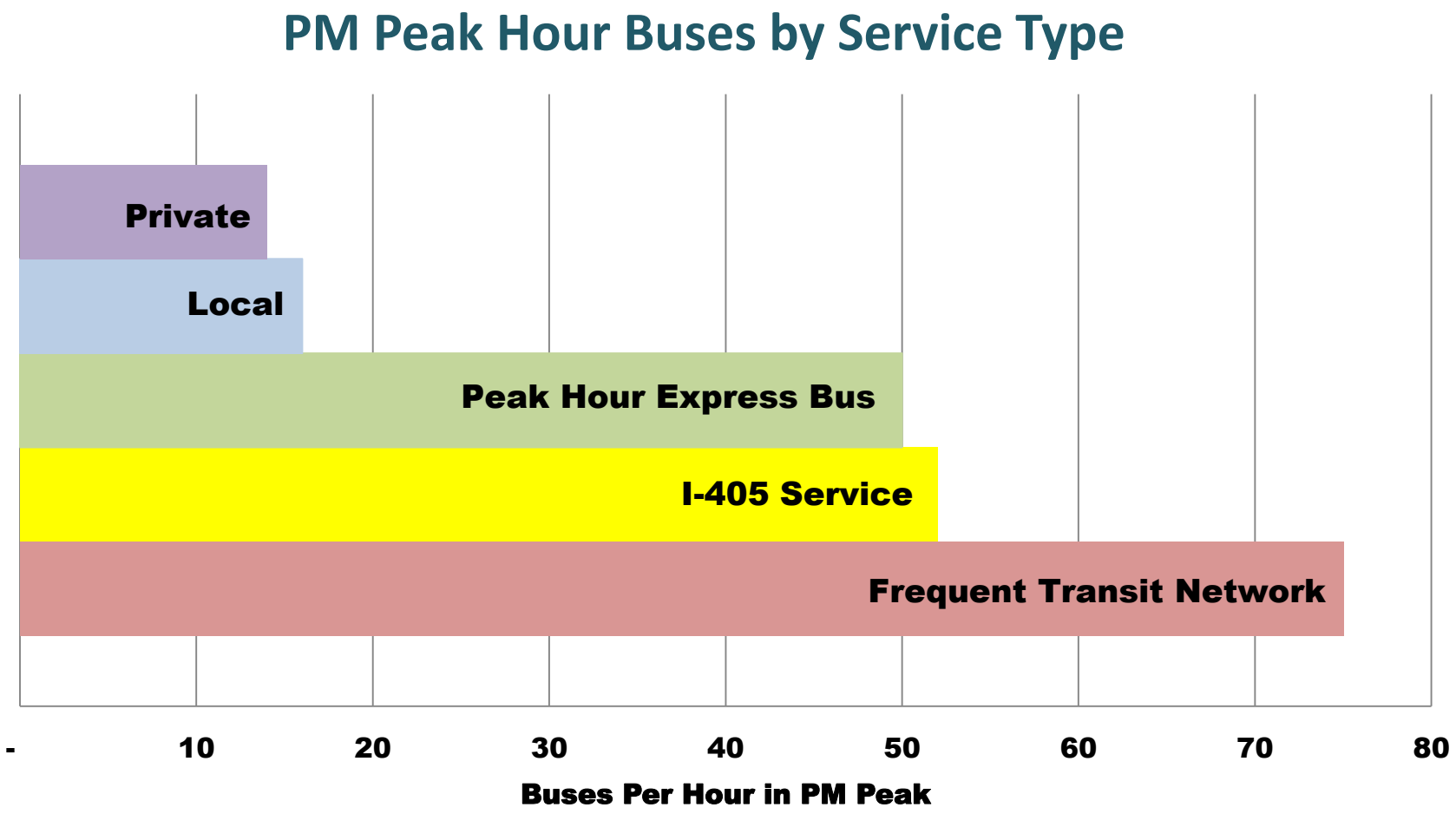
2030 Total Transit Trips Entering Downtown:
47,000



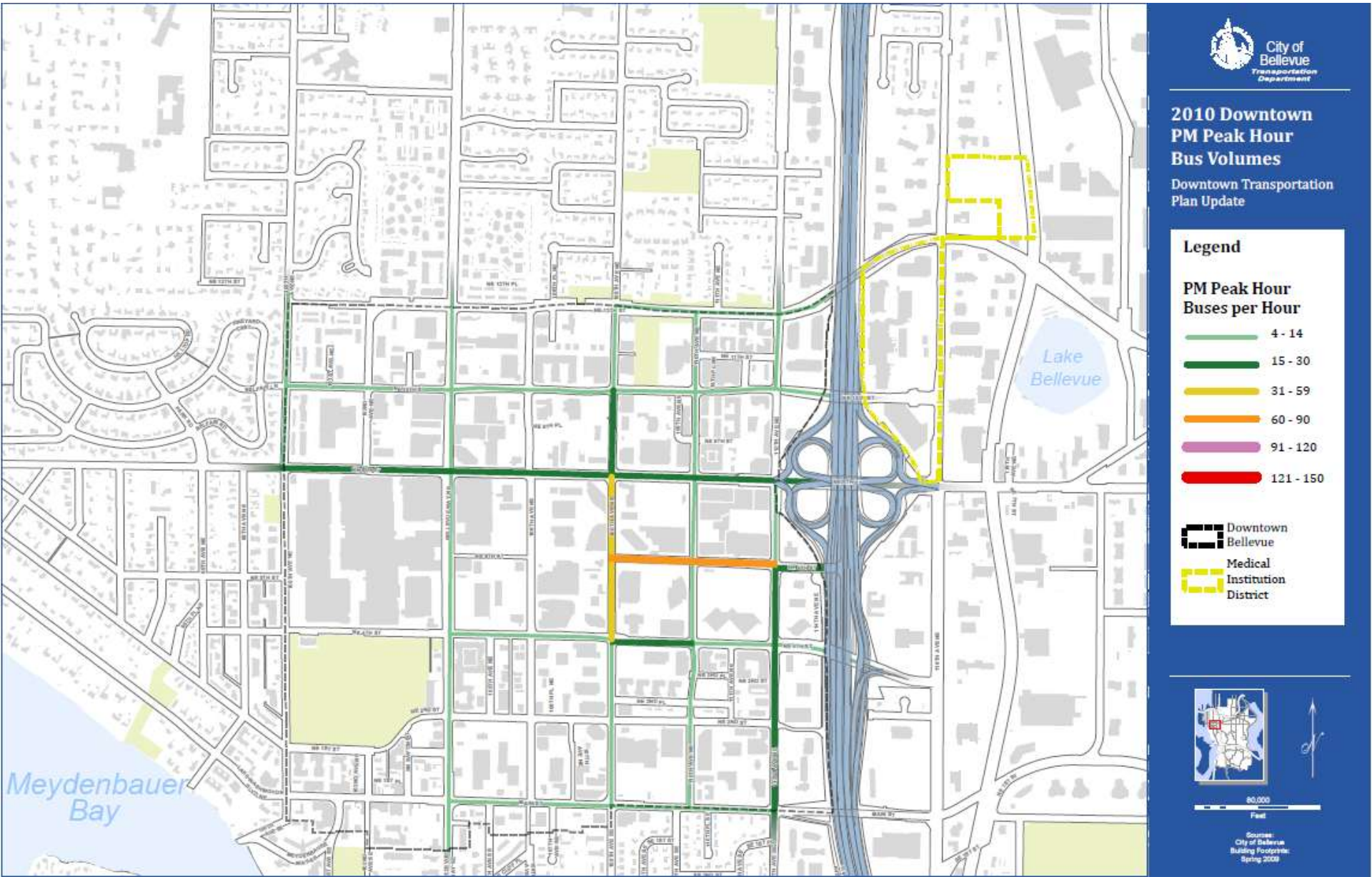
14,000 PM Peak Downtown Transit Trips



Buses Downtown PM Peak

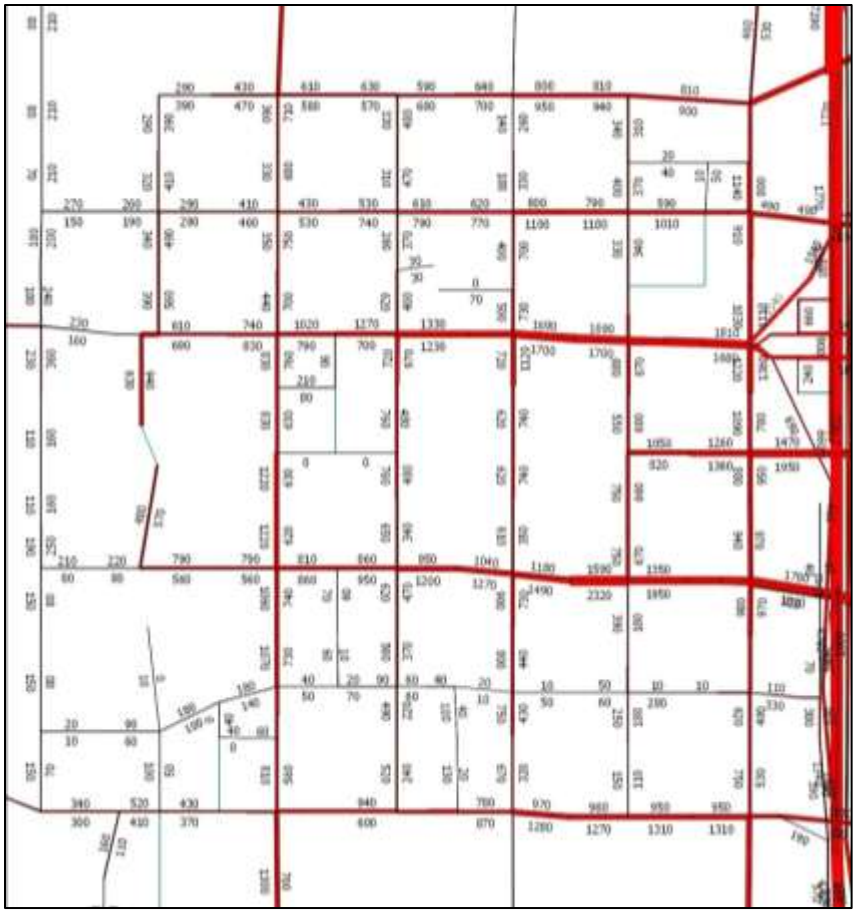


2010 Downtown PM Peak Hour Bus Volumes

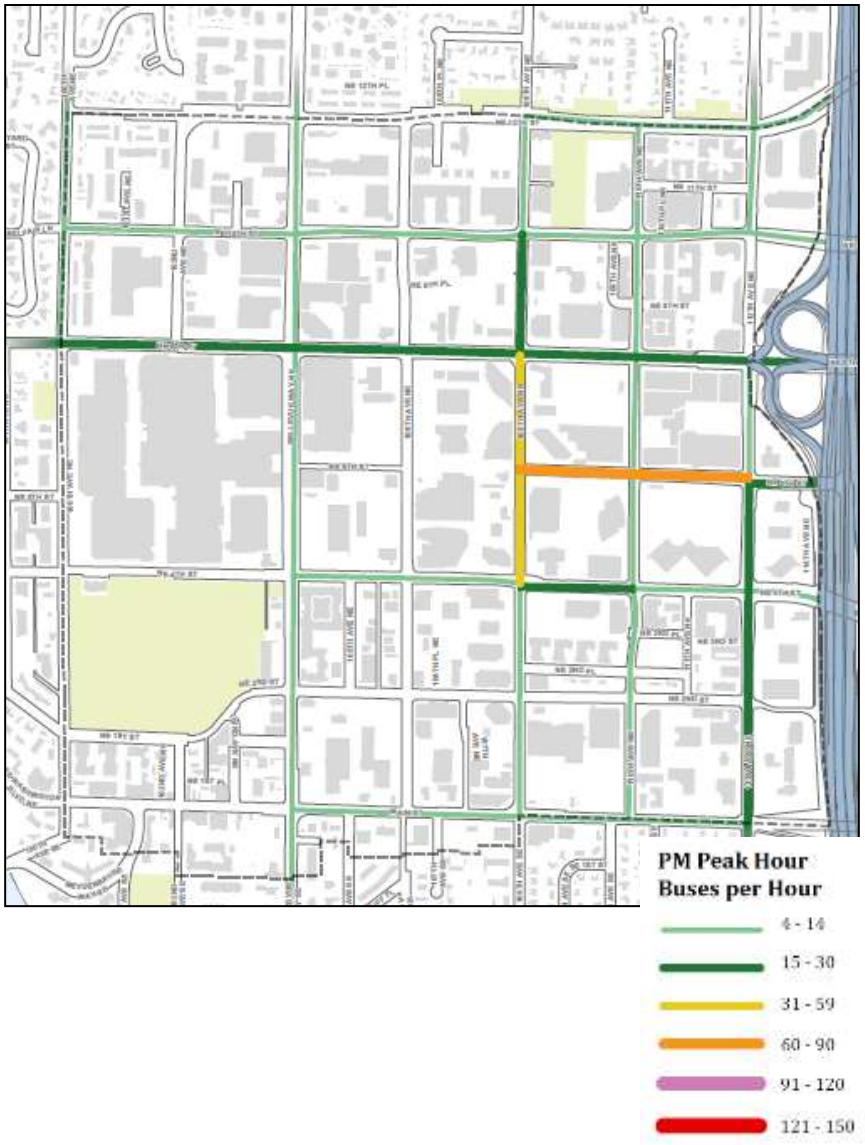


2010 Downtown PM Peak Hour Bus Volumes

All Traffic

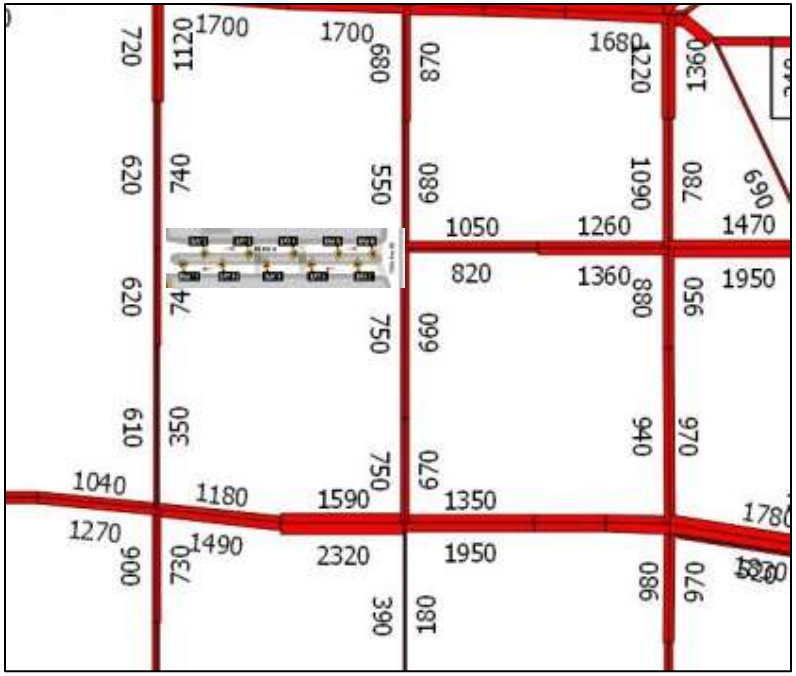


Bus Traffic



2010 Downtown PM Peak Hour Bus Volumes

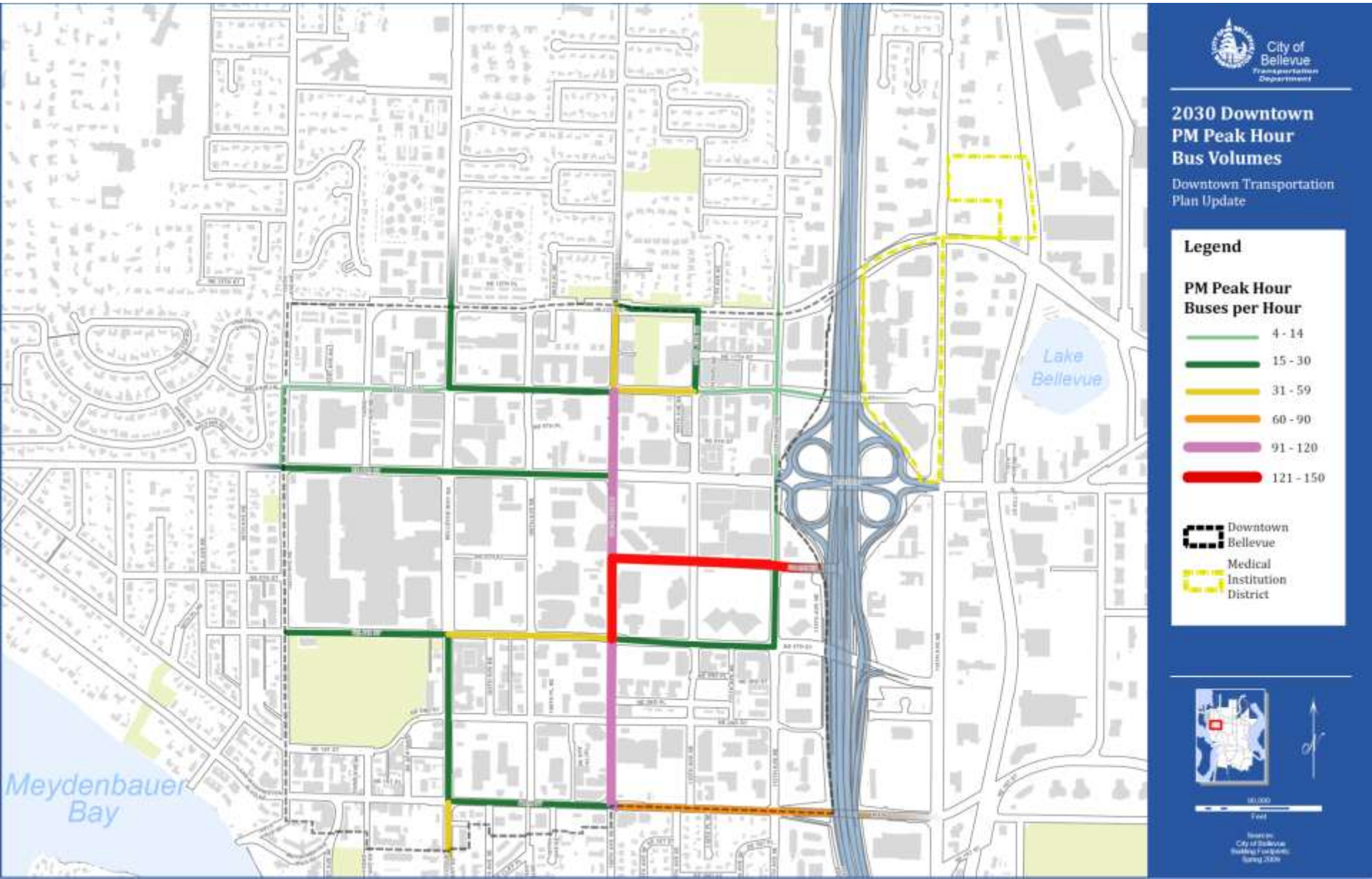
All Traffic



Bus Traffic

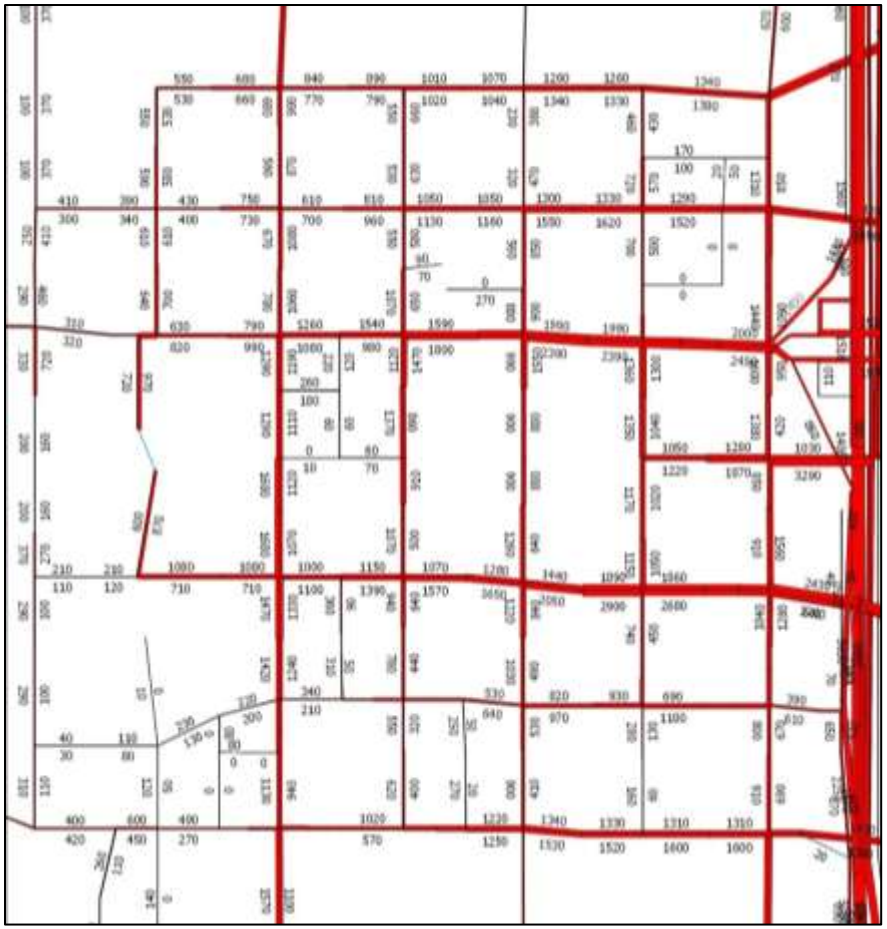
Buses represent 6.0% of the total traffic volume on 108th Avenue NE between NE 4th Street and NE 6th Street. Where most buses are currently running – on NE 6th Street between 110th Avenue NE and 112th Avenue NE - the ratio is 4.8%

2030 Downtown PM Peak Hour Bus Volumes

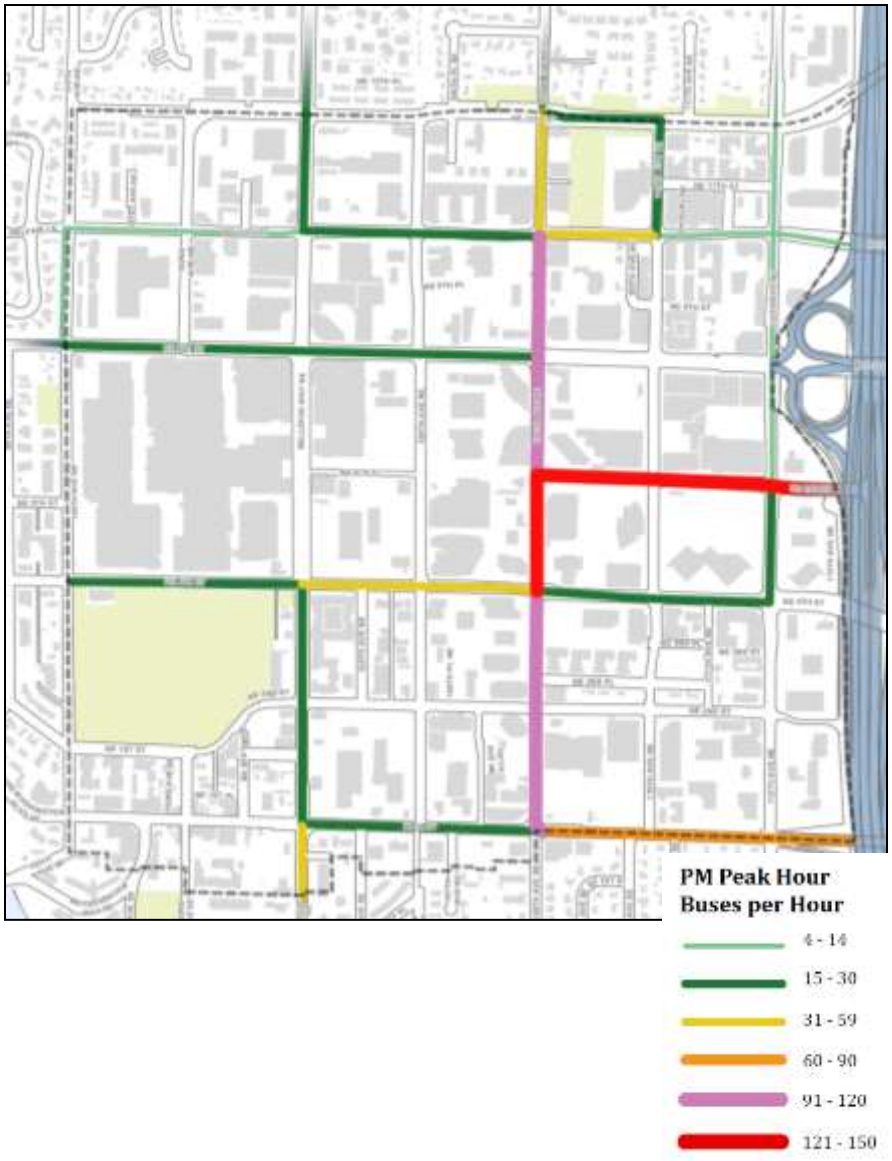


2030 Downtown PM Peak Hour Volume

All Traffic

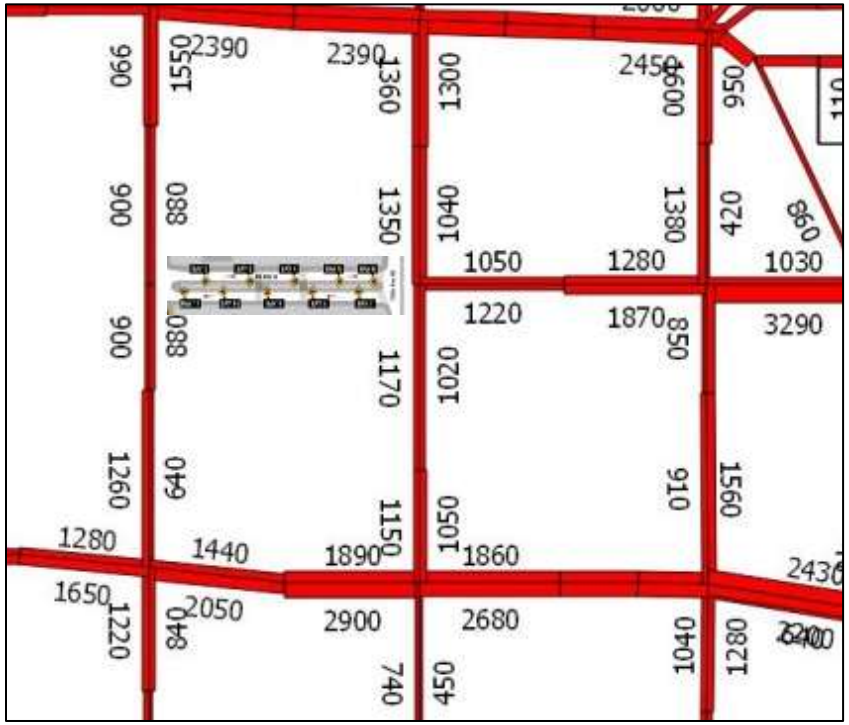


Bus Traffic

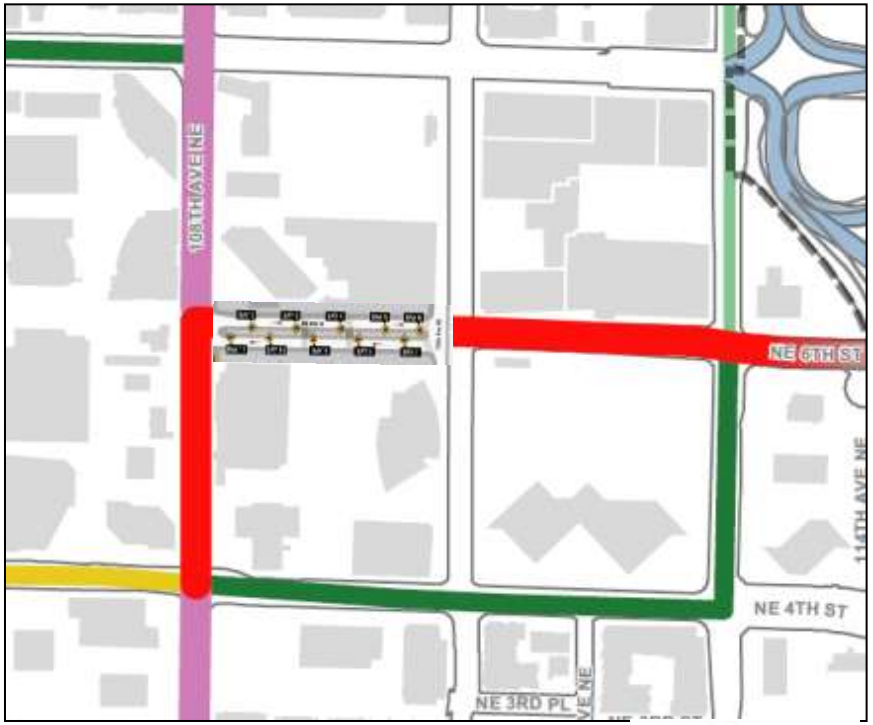


2030 Downtown PM Peak Hour Volume

All Traffic



Bus Traffic



Buses represent 7.8% of the total traffic volume where most buses are expected – between NE 4th Street and NE 6th Street on 108th Avenue NE. Buses projected at 5.4% on NE 6th Street between 110th Ave NE and 112th Ave NE

2030 Downtown Transit Priority Corridors

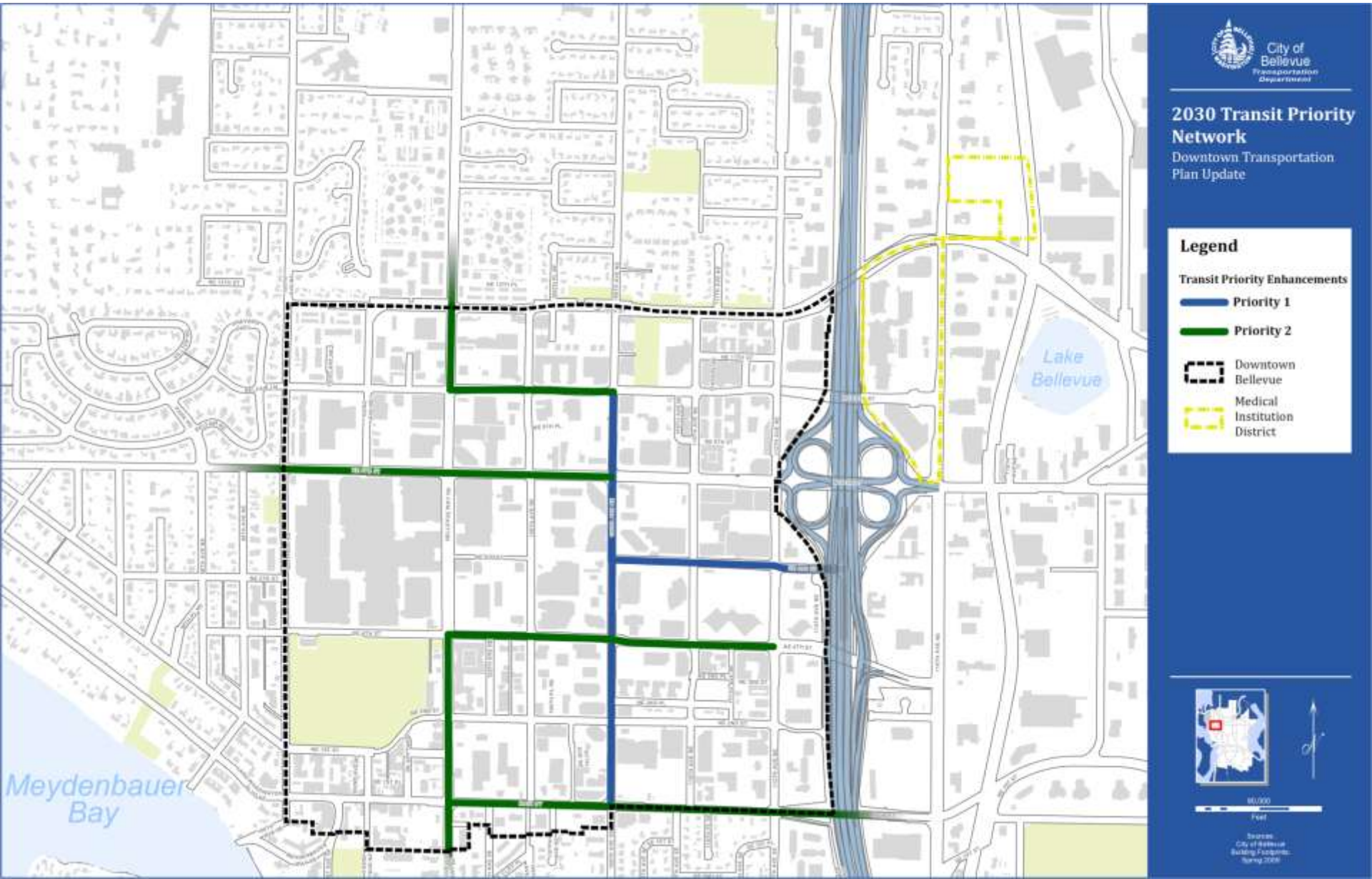
Priority 1 Transit Corridors: 91 or more bus trips in PM Peak hour

Priority 2 Transit Corridors: Generally 15 or more bus trips in PM Peak hour (not all short segments included)

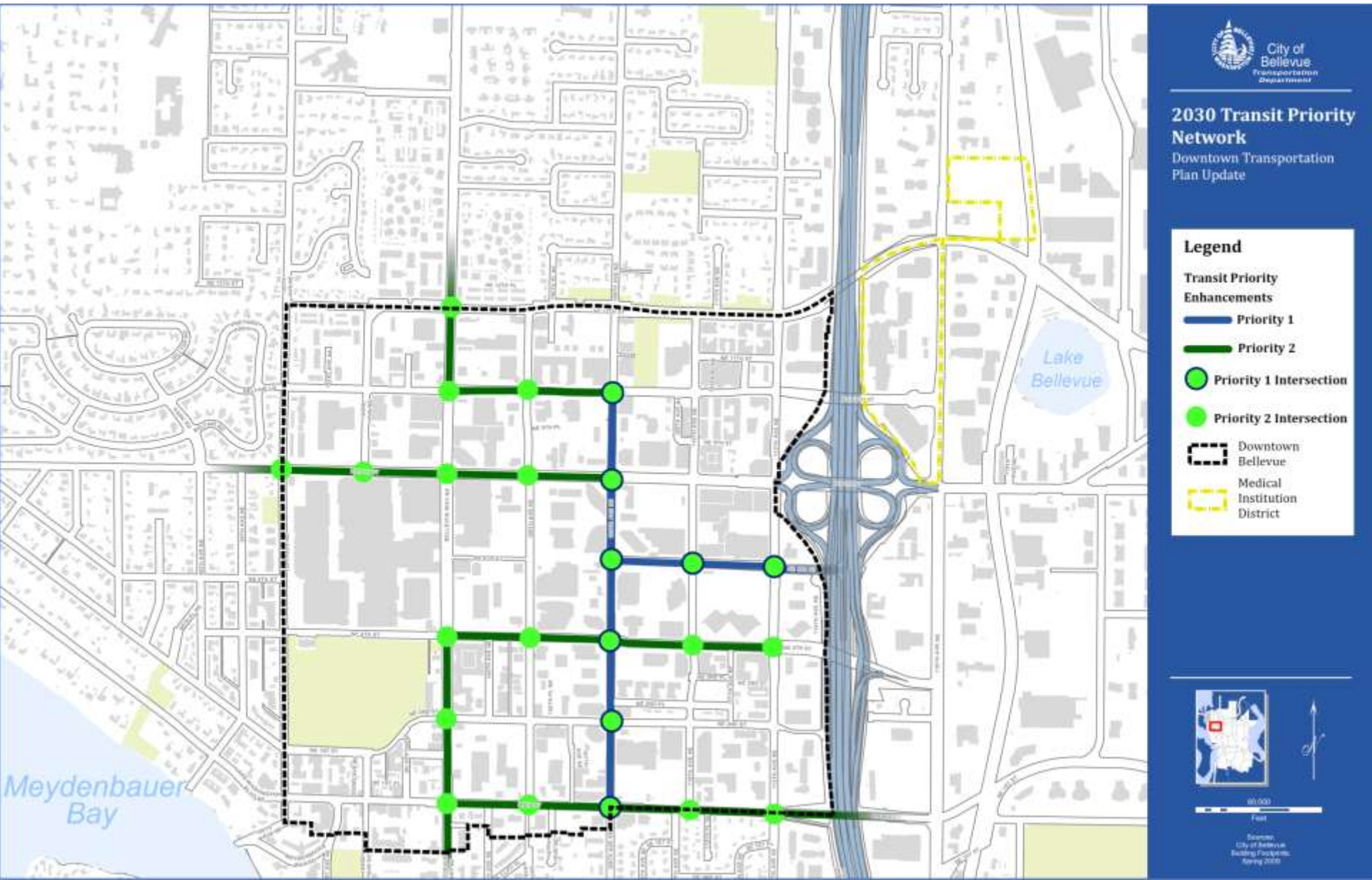
Priority 1 Intersections: On a Priority 1 Transit Corridor

Priority 2 Intersections: On a Priority 2 Transit Corridor

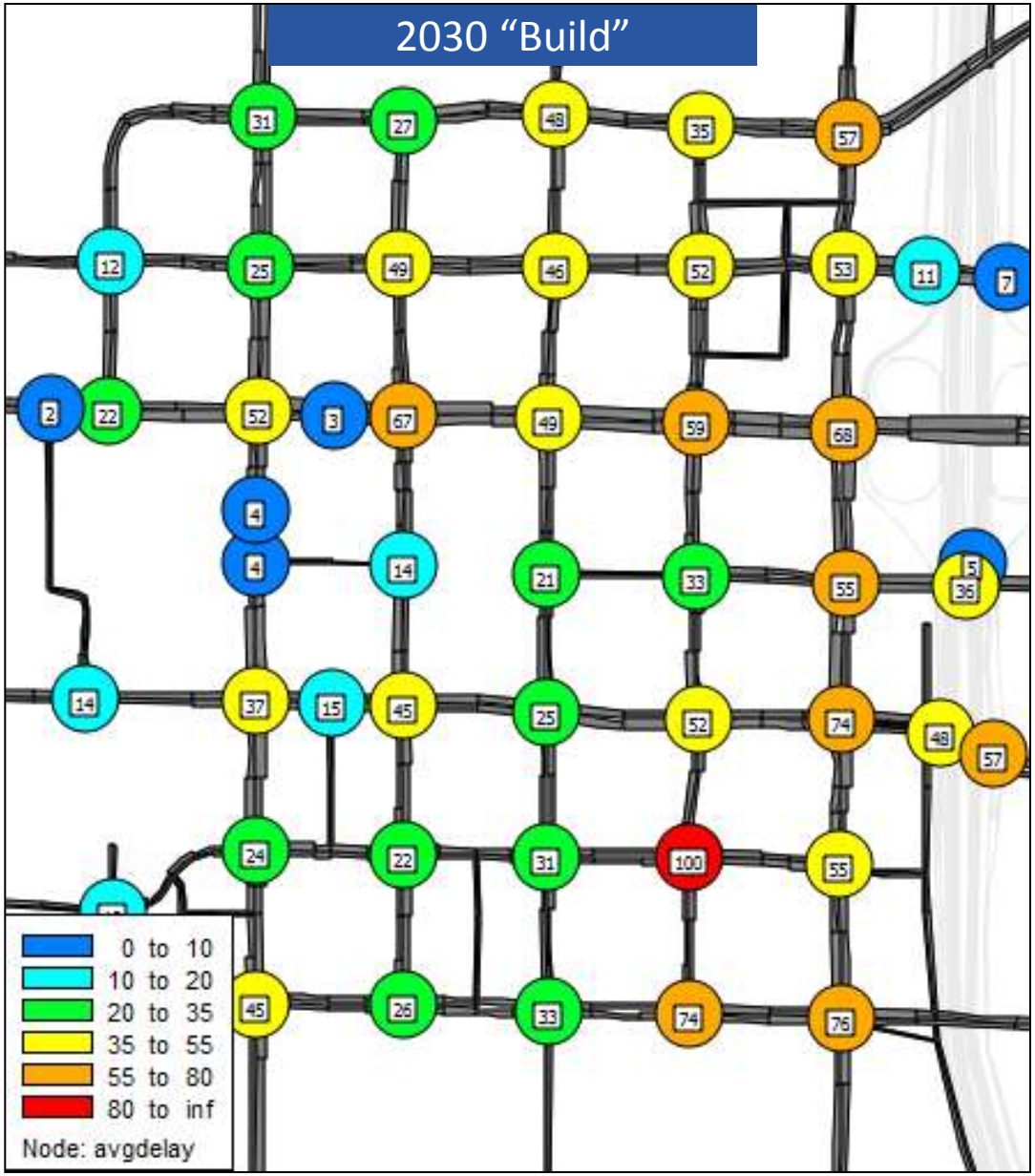
2030 Downtown Transit Priority Corridors



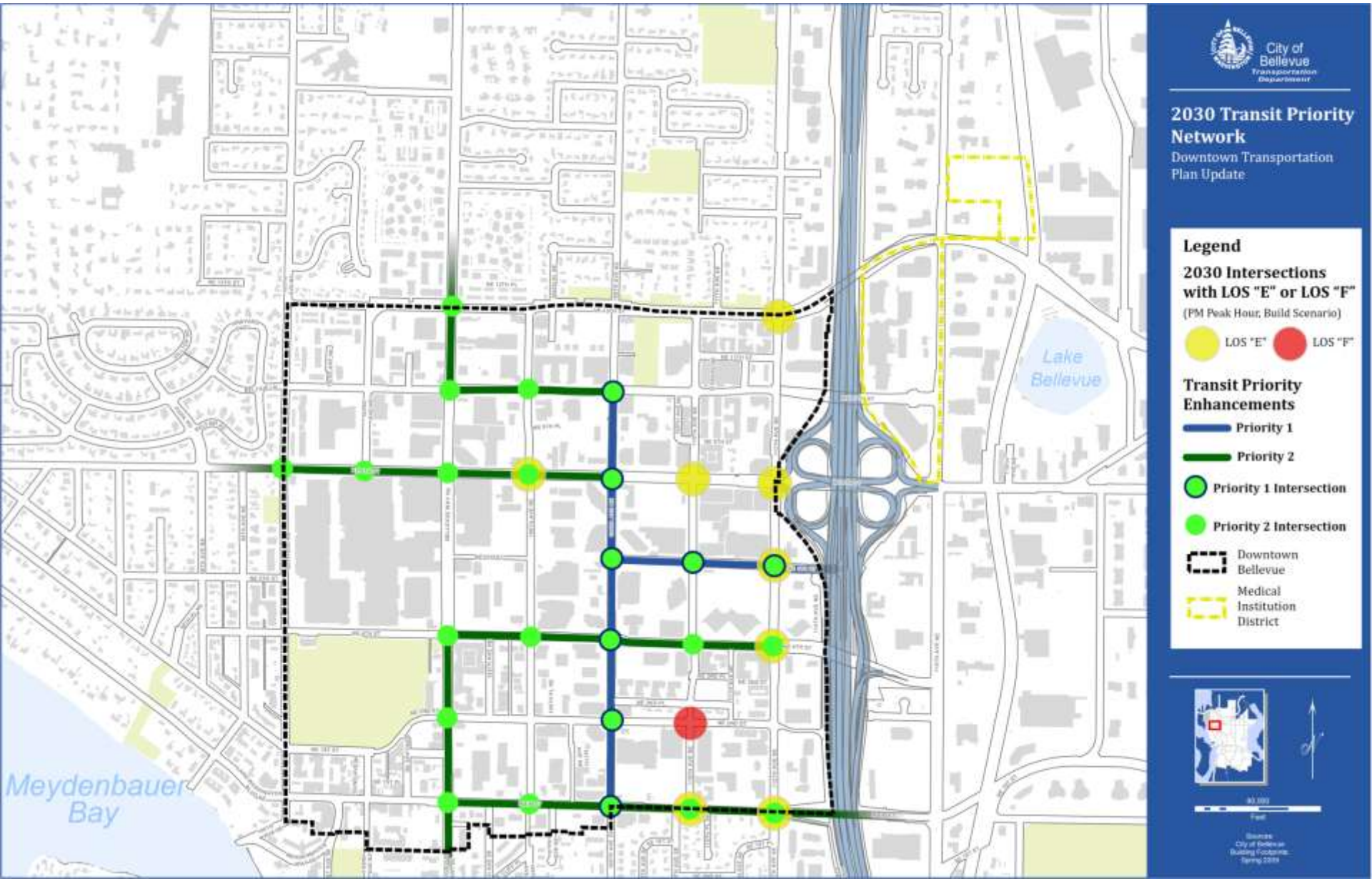
2030 Downtown Transit Priority Corridors + Intersections



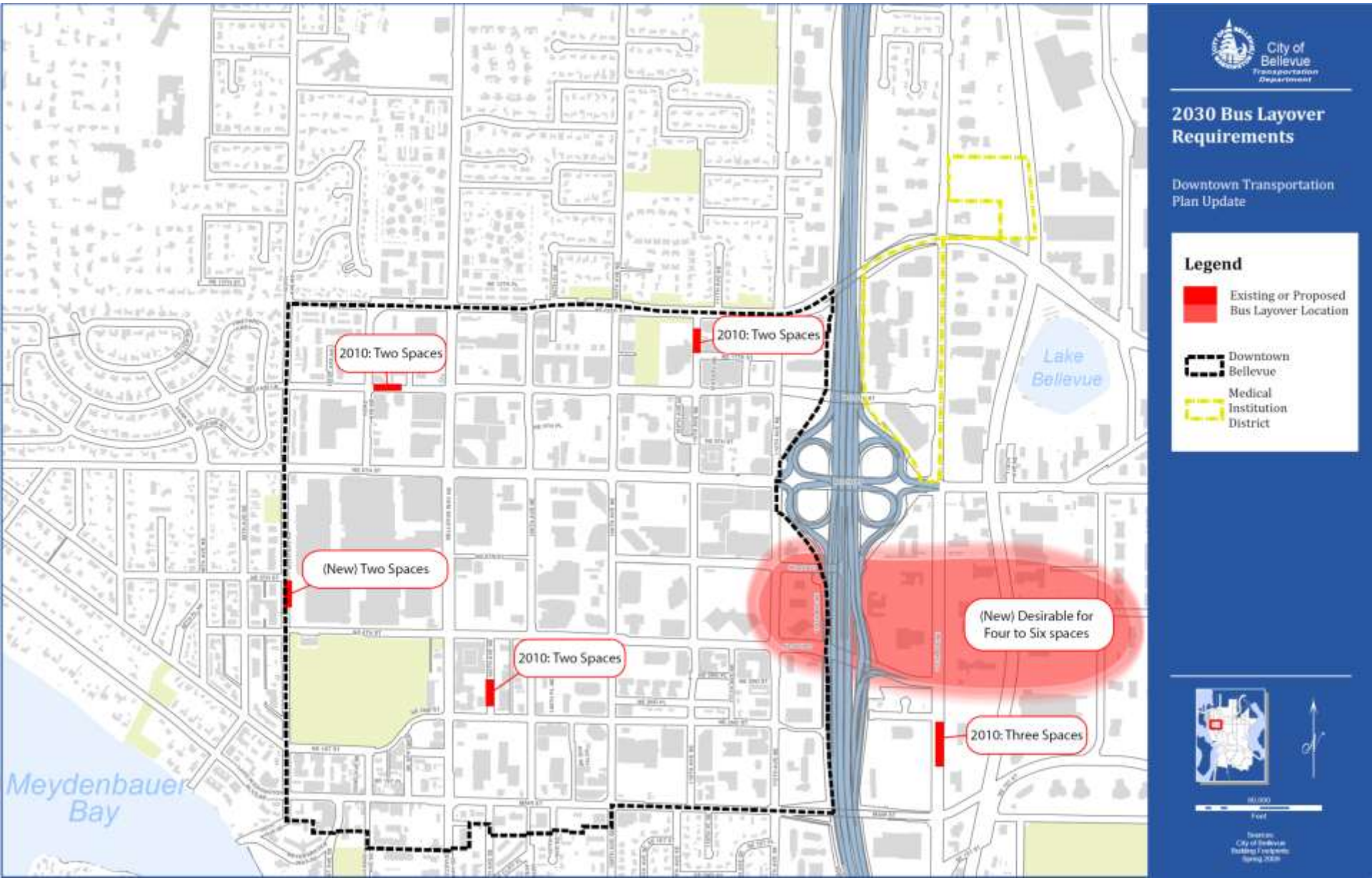
2030 PM Peak Hour LOS - Average Delay



2030 Transit Priority Corridors + PM Peak Hour LOS



2030 Bus Layover Space Needs



Downtown Bus Service Summary

1,150: 2010 Downtown Weekday Bus Trips

1,750: 2030 Downtown Weekday Bus Trips

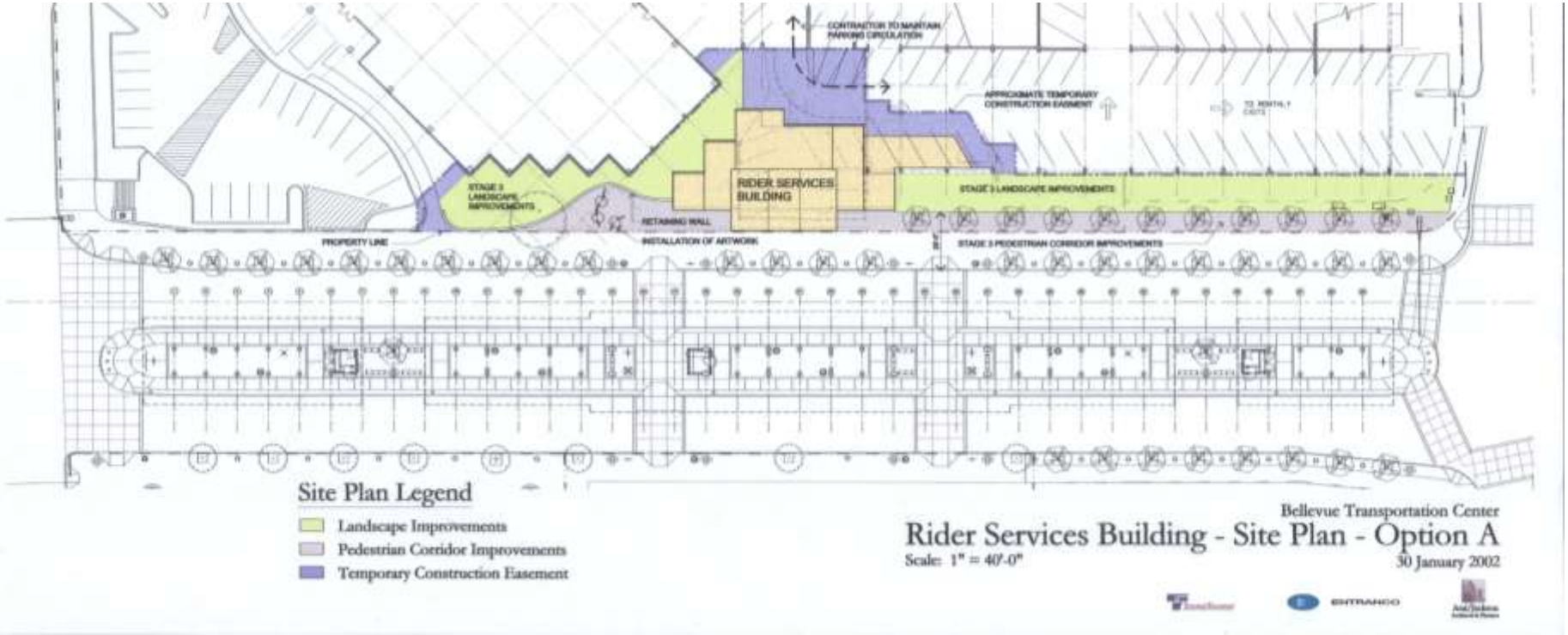
50%: Increase in Downtown Bus Trips in 2030

4-6: New transit layover spaces in or near Downtown

Bellevue Transit Center

Vital Statistics – October 2002 Expansion

- 10 bus bays
- 28 foot wide covered platform
- 24 foot wide driving lanes on each side of platform
- Major Pedestrian Corridor
  - 12’+ sidewalk south side
  - 16’+ sidewalk north side
- 2 mid-block crossings
- 23 bicycle racks on the north sidewalk
- Rider services building north side



Downtown Bellevue Transportation Center Project

- Need for BTC improvements:
  - **Existing facility is over crowded and undersized**
  - **Primary reason for expansion is Sound Transit service additions, fall of 2000 and fall 2001**
  - **Peak period will remain overcrowded**
  - **Project addresses needs through 2010**
  - **Bellevue Comprehensive plan requires increased non-SOV use to meet congestion objectives**

Bellevue Transportation Commission

February 24, 2000

Bellevue Transit Center Pedestrian Capacity

Walkway LOS

LOS	Pedestrian Space (ft^2/person)
A	≥ 35
B	25-35
C	15-25
D	10-15
E	5-10
F	< 5

Waiting Area LOS

LOS	Pedestrian Space (ft^2/person)
A	≥ 13
B	10-13
C	7-10
D	3-7
E	2-3
F	< 2

- Pedestrian level of service (LOS)* is based on the amount of platform space and the number of people walking through and waiting for buses

  **Transit Capacity and Quality of Service Manual*
- In 2010, about 30-40 square feet per person at BTC during PM Peak
  - LOS A for waiting areas
  - LOS A or LOS B for walkways
- By 2030 pedestrian LOS expected to fall to about LOS C for waiting areas and LOS D for walkways

Bellevue Transit Center Pedestrian Capacity

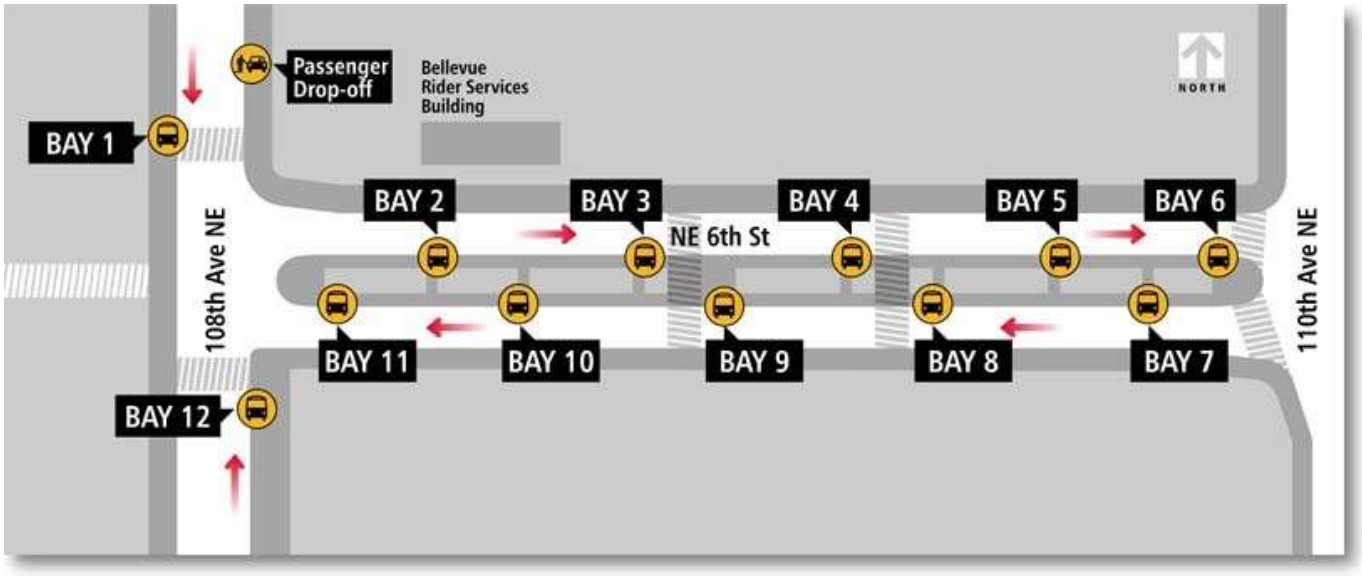
- East Link – Bus connections will increase transfer activity at the Transit Center
  - Queuing space
  - Circulation
- While overall pedestrian space appears to be adequate now and in 2030, LOS - and the quality of the transit experience - for transit passengers could be enhanced
- Pedestrian queuing and circulation areas on platform are unnecessarily congested

Bellevue Transit Center Pedestrian Capacity

Pedestrian queuing and circulation areas on platform are unnecessarily congested

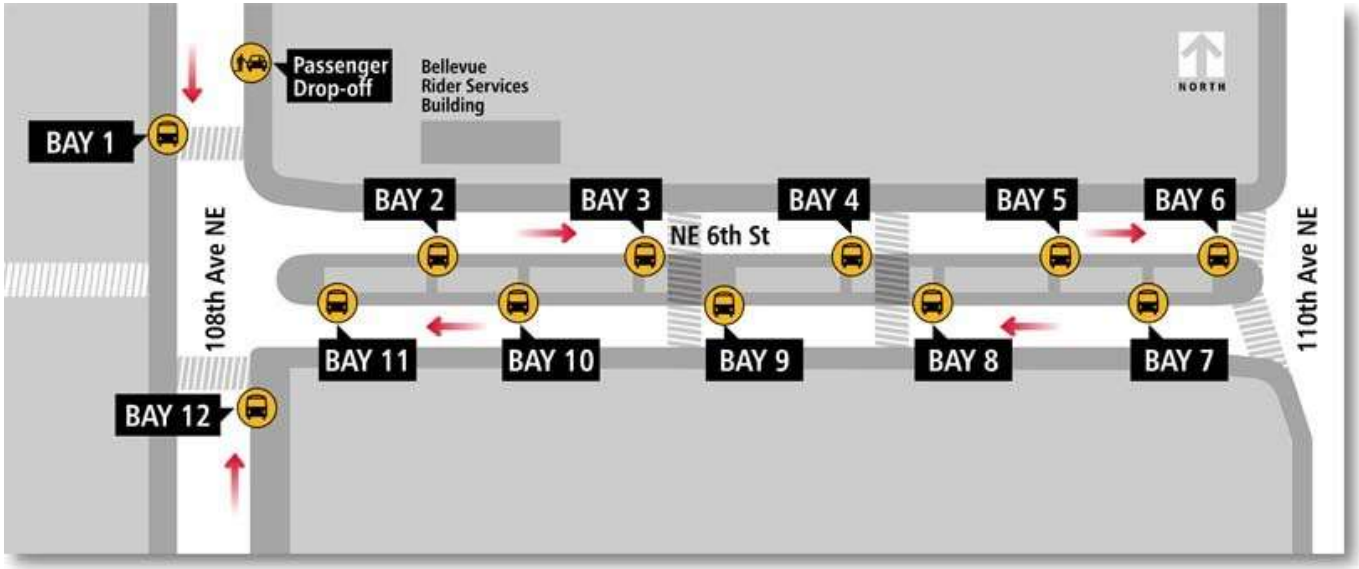
- Benches
- Wayfinding signs
- Telephone booths
- Kiosks
- Trash receptacles

Bellevue Transit Center Bus Capacity



- 10 bus bays on Transit Center platform, 2 bays on 108th Ave NE
- 2010: About 80 buses per hour serve platform during the PM Peak
- 2030: Buses serving the platform in the PM Peak would increase to about 125 per hour
  - Increase use of 108th Ave NE as a transit priority corridor
    - Additional bus trips serve Bays 1 and 12
    - Up to 150 buses per hour on 108th Ave NE
- Assess transit circulation into and out of the Transit Center

Bellevue Transit Center Bus Capacity



- Buses may be “trapped” at the platform by buses waiting at the signal
- Lower frequency routes could be reassigned to Bays 5, 6, 10 and 11 to reduce delay of “trapped” buses
- Bus bay reassignments may increase some passenger walking distances, but would decrease delay for all passengers

Transit Service Capacity

Preliminary Staff Recommendations

Regarding projected transit capacity demand

Transit Infrastructure Capacity

- **Arterials**
  - Designate Transit Priority Corridors
  - Designate Transit Priority Intersections
  - Identify components of Transit Priority Corridors and Intersections to improve bus capacity on arterials
  - Bus speed and reliability improvements (TBD)
- **Transit Center**
  - Assess current/projected transit and passenger circulation
  - Reassign bus bays if “trapping” is a frequent cause of delay
  - Direct more buses to the bus bays on 108th Avenue NE
  - Redesign platform space for better queuing and walking
  - Passenger comfort, access and information (TBD)

Transit Service Capacity

Preliminary Staff Recommendations, continued

Regarding projected transit capacity demand

Transit Service Capacity

- **Bus Service**
  - Advocate for adequate bus service to meet 2030 demand
    - Anticipate 50% increase in bus service needed to support Downtown transit demand
- **Layover space**
  - Identify 6 to 8 potential new layover spaces within or near Downtown

Next Steps

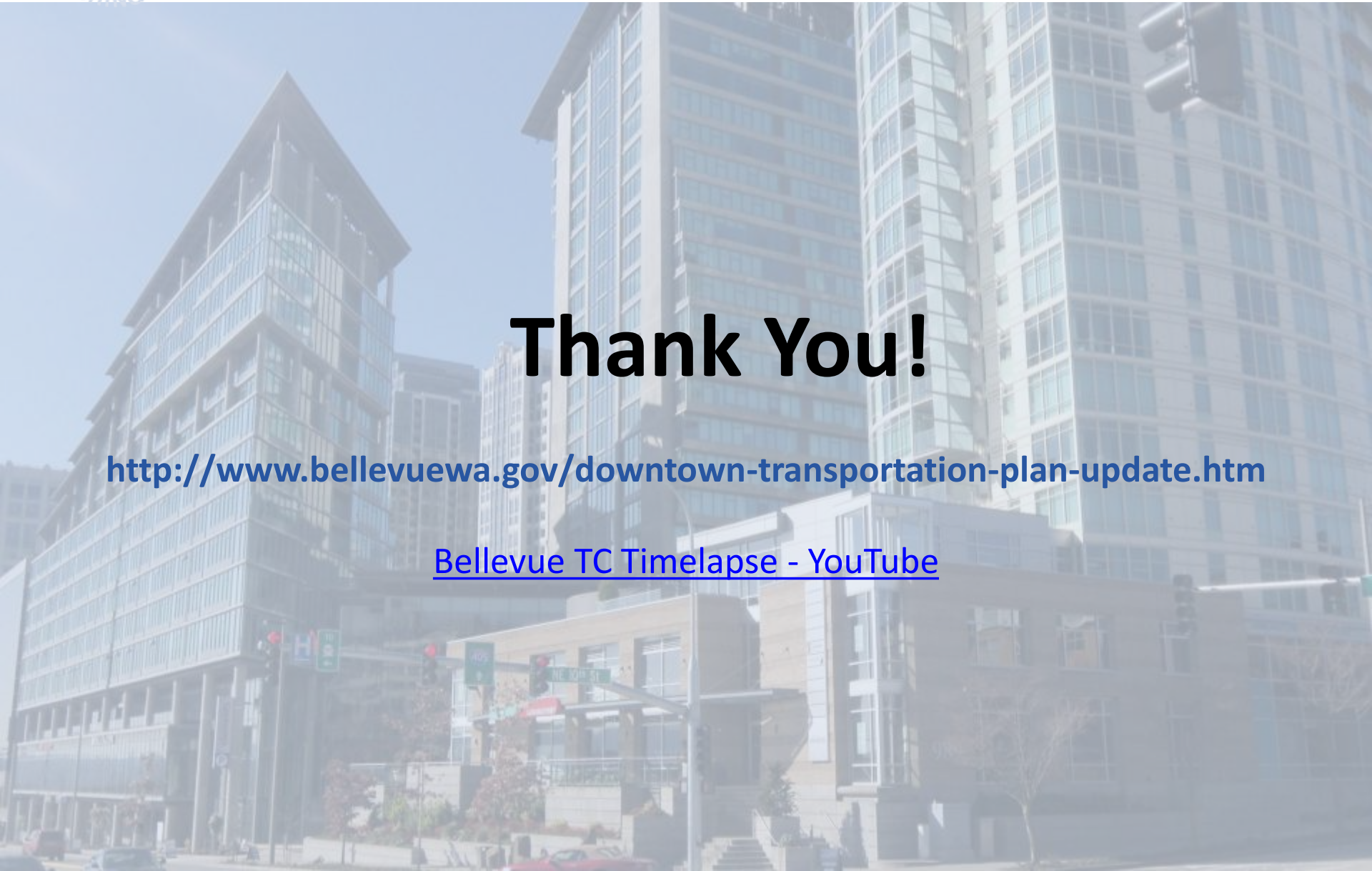
March 14, 2013: Transportation Commission

- Downtown Transit – Speed and Reliability
  - Transit Priority Corridors
  - Transit Priority Intersections

April 24: Spring EXPO

May 9, 2013: Transportation Commission

- Downtown Transit – Passenger Comfort, Access and Information



Thank You!

http://www.bellevuewa.gov/downtown-transportation-plan-update.htm

Bellevue TC Timelapse - YouTube